

I claim:

1. A method of delivering data on an Internet to a plurality of receivers, said receivers comprising first subscribers of a first independent internet service provider and second subscribers of a second independent internet service provider, said first and  
5 second independent Internet service providers being capable of providing multicast service to said first and second subscribers, respectively, said method comprising:

delivering said data to said first Internet service provider, said first Internet service provider multicasting said data, thereby making said information available to said at least one of said first subscribers; and

- 10 delivering said data to said second Internet service provider, said second Internet service provider multicasting said data, thereby making said information available to said at least one of said second subscribers.

2. The method according to claim 1, further comprising receiving a request  
15 for transmitting information to at least one of said first subscribers and at least one of said second subscribers.

3. The method according to claim 1, wherein said information comprises at least one of audio and video data.

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4. A method for joining a multicast transmission on an Internet, said transmissions being multicasted to first subscribers of a first independent Internet service provider and to second subscribers of a second independent Internet service provider,

wherein said first and second independent Internet service providers are capable of providing multicast service to said first and second subscribers, respectively,

said method comprising:

5 sending a join request to said first independent Internet service provider, and making said multicast transmission available to at least one of said first subscribers in accordance with said join request; or

sending a join request to said second independent Internet service provider, and making said multicast transmission available to at least one of said second subscribers in accordance with said join request.

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5. The method according to claim 4, wherein said join request is sent from one of said first and second subscribers.

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6. The method according to claim 4, further comprising:  
receiving said join request at a first router of said first independent Internet service provider;

transmitting said join request to a second router, which receives information from said first router and from a third router, if said first router is not receiving said multicast transmission;

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establishing said multicast transmission on said first router if said second router is receiving said multicast transmission; and

joining said multicast transmission on said first router;

wherein said transmitting said join request and said establishing said multicast transmission are repeated until either said join request is received by a router which is receiving said multicast transmission, or until said join request is received by said source of said multicast transmission.

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7. A method for delivering a multicast transmission to least one of first subscribers of a first independent Internet service provider, and to at least one of second subscribers of a second independent Internet service provider, said method comprising:

10 establishing a trusted third party, said trusted third party having authorization for sending said multicast transmission to said first independent internet service provider, and to said second independent internet service provider;

15 providing information, via said trusted third party, indicative of availability of said multicast transmission to at least one of said first and second subscribers, and providing to at least one of said first and second subscribers an indication of an action that is to be performed to receive said multicast transmission; and

delivering said multicast transmission, via said trusted third party, to at least one of said subscribers in response to said action performed by said at least one of said subscribers.

20 8. The method according to claim 7 wherein said trusted third party sends unicast messages indicative of said multicast transmission to each of said first and second independent internet service providers,

whereby said first independent internet service provider establishes said multicast transmission from said first router, and said second independent internet service provider establishes said multicast transmission from said second router.

5           9.       The method according to claim 7 wherein at least one of said first and second routers is a border router.

10           10.       The method according to claim 8 wherein said multicast transmission is delivered to a router which receives information from, and/or delivers information to, said at least one of said subscribers.

15           11.       The method according to claim 8 wherein said unicast messages indicative of said multicast transmission are individually tailored based on the routing requirements of respective ones of said first and second independent internet service providers.

          12.       The method according to claim 7 wherein said trusted third party sends a multicast message indicative of said multicast transmission to said first and second independent internet service providers,

20           whereby said first independent internet service provider establishes said multicast transmission from said first router, and said second independent internet service provider establishes said multicast transmission from said second router.

13. The method according to claim 7 wherein delivering said multicast transmission to at least one of said subscribers is in response only to said action performed by said at least one of said subscribers.

5 14. The method according to claim 7 wherein said multicast transmission comprises a plurality of separate channels, each of said separate channels carrying a separate stream of information.

10 15. The method according to claim 14 wherein each of said separate channels comprises at least a first sub-channel and a second sub-channel, said first sub-channels carrying a first copy of said separate stream of information and said second sub-channels carrying a second copy of said separate stream of information.

15 16. The method according to claim 15 further comprising creating a multicast group for said plurality of said separate channels, said multicast group comprising a plurality of multicast sources.

20 17. The method according to claim 15 further comprising creating a plurality of multicast groups, each of said multicast groups corresponding to each of said plurality of said separate channels, and each of said multicast groups comprising a multicast source.

18. The method according to claim 15 further comprising

transmitting said first copy of said separate stream of information sources on said first sub-channel at a first time, and

transmitting said second copy of said separate stream of information on said second sub-channel at a second time,

5 wherein said first time is not equal to said second time.

19. The method according to claim 15 further comprising combining said first copy of said separate stream information and said second copy of said separate stream information into a combined stream of information, wherein any corrupt or missing data  
10 in one of said first copy and said second copy of said separate stream of information is replaced by a corresponding uncorrupted data from another of said first copy and said second copy of said separate stream of information.

20. The method according to claim 18 where said first copy of said separate  
15 stream of information is transmitted at lower rate than a rate of transmission of said second copy of said separate stream of information.

21. The method according to claim 18 wherein said first copy of said separate stream of information is transmitted at a lower "quality" than a quality of transmission of  
20 said second copy of said separate stream of information.

22. The method according to claim 21 wherein said second copy of said separate stream of information is transmitted at a desired "quality".

23. The method according to claim 14 wherein said separate stream of information is audio or video data.

5 24. The method according to claim 20 wherein said first copy of said separate stream of information transmitted at said lower rate is sufficient to recover at least a minimal representation of said separate stream of information.

10 25. The method according to claim 21 wherein said first copy of said separate stream of information transmitted at said lower quality contains information sufficient to recover at least a minimal representation of said separate stream of information.

26. The method according to claim 14 comprising:  
transmitting said separate stream of information on a main sub-channel as a joint  
15 normal stereo MP3 encoding at 160 kilobits per second, transmitted MDP / 2 seconds in advance of real time,

transmitting said separate stream of information on an immediate sub-channel as a mono MP3 encoding at approximately 32 kbps, transmitted one second in advance of real time,

20 transmitting said separate stream of information on a delayed sub-channel as a mono MP3 encoding at 32 kbps, transmitted MDP seconds in advance of real time, and

transmitting ASCII text on a text sub-channel MDP / 2 seconds in advance of real time at 5 kbps.

27. The method according to claim 26 wherein said ASCII text contains data for an advertising crawl bar or for any required control information,

5 28. A method of delivering a stream of information on an Internet, said information including a stream of data transmitted at a first time, comprising:  
creating a sub-stream of data which is a copy of said stream of data; and  
transmitting said sub-stream of data at a second time.

10 29. A method according to claim 28 wherein said second time is not equal to said first time.

30. A method according to claim 28 wherein said stream of data and said sub-stream of data are multicasted on the Internet.

15 31. The method according to claim 28 wherein said stream of data is audio or video data.

32. A method according to claim 28 further comprising combining said stream  
20 of data and said sub-stream of data into a combined stream of data, wherein any corrupt or missing data in one of said stream of data and said sub-stream of data is replaced by a corresponding uncorrupted data from another of said stream of data and said sub-stream of data.



33. The method according to claim 28 where said sub-stream of data is transmitted at lower rate than a rate of transmission of said stream of data.

5 34. The method according to claim 28 wherein said sub-stream of data is transmitted at a lower "quality" than a quality of transmission of said stream of data.

35. The method according to claim 34 wherein said stream of data is transmitted at a desired "quality".

10 36. A method of delivering a stream of information on an Internet comprising:  
creating at least a first sub-stream of information, which is a first copy of said stream of information, and a second sub-stream of information, which is a second copy of said stream of information;

15 transmitting said first sub-stream of information at a first time; and  
transmitting said second sub-stream of information at a second time.

37. A method according to claim 36 wherein said first time is not equal to said second time.

20 38. A method according to claim 36 wherein said first sub-stream of information and said second sub-stream of information are multicasted on the Internet.

39. The method according to claim 36 wherein said stream of data is audio or video data.

40. A method according to claim 36 further comprising combining said first  
5 sub-stream of information and said second sub-stream of information into a combined stream of data, wherein any corrupt or missing data in one of said first sub-stream of information and said second sub-stream of information is replaced by a corresponding uncorrupted data from another of said first sub-stream of information and said second sub-stream of information.

10 41. The method according to claim 36 where said first sub-stream of information is transmitted at lower rate than a rate of transmission of said second stream of information.

42. The method according to claim 36 wherein said first sub-stream of  
15 information is transmitted at a lower "quality" than a quality of transmission of said second stream of information.

43. The method according to claim 42 wherein said second stream of data is transmitted at a desired "quality".

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44. A method of receiving a stream of information on an Internet, said information including a stream of data transmitted at a first time, comprising:  
receiving said stream of data; and

receiving a sub-stream of data, which is a copy of said stream of data, transmitted  
at a second time.

45. A method according to claim 44 wherein said second time is not equal to  
5 said first time.

46. A method according to claim 44 wherein said stream of data and said sub-  
stream of data are multicasted on the Internet.

10 47. The method according to claim 44 wherein said stream of data is audio or  
video data.

48. A method according to claim 44 further comprising combining said stream  
of data and said sub-stream of data into a combined stream of data, wherein any corrupt  
15 or missing data in one of said stream of data and said sub-stream of data is replaced by a  
corresponding uncorrupted data from another of said stream of data and said sub-stream  
of data.

49. A method of receiving a stream of information on an Internet comprising:  
20 receiving at least a first sub-stream of information, which is a first copy of said  
stream of information transmitted at a first time, and  
receiving a second sub-stream of information, which is a second copy of said  
stream of information transmitted at a second time.

50. A method according to claim 49 wherein said first time is not equal to said second time.

5 51. A method according to claim 49 wherein said first sub-stream of information and said second sub-stream of information are multicasted on the Internet.

52. The method according to claim 49 wherein said stream of data is audio or video data.

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53. A method according to claim 49 further comprising combining said first sub-stream of information and said second sub-stream of information into a combined stream of data, wherein any corrupt or missing data in one of said first sub-stream of information and said second sub-stream of information is replaced by a corresponding  
15 uncorrupted data from another of said first sub-stream of information and said second sub-stream of information.